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**United States Patent [19]****Franz****[11] Patent Number: 5,431,064****[45] Date of Patent: Jul. 11, 1995****[54] TRANSDUCER ARRAY****[75] Inventor:** Patrick J. Franz, Portland, Oreg.**[73] Assignee:** Home Row, Inc., Clackamas, Oreg.**[21] Appl. No.:** 948,143**[22] Filed:** Sep. 18, 1992**[51] Int. Cl.<sup>6</sup>** ..... G01L 1/00**[52] U.S. Cl.** ..... 73/862.68; 73/862.392**[58] Field of Search** ..... 73/862.046, 862.041,  
73/862.68, 767; 382/4, 5; 338/49**[56] References Cited****U.S. PATENT DOCUMENTS**

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A pressure sensitive transducer array in which a plurality of transducers are connected in series and in parallel with one another. In one embodiment, a resistive layer is formed from carbon or silver ink on a polyester film. A plurality of conductive shunt elements having greater conductivity than the resistive layer is formed on a second polyester film. The films are placed adjacent to one another with the shunt elements contacting the resistive layer. Voltage is applied across the resistive layer and pressure is applied thereto. As the pressure increases, the number of current paths set up through contact points on the shunt elements increase thereby decreasing the resistance across the resistive layer and increasing current flow. In another embodiment a plurality of plate elements are contained in a plane on one side of a dielectric layer. A plurality of plate elements are contained in a plane on the other side of the dielectric layer. As the layer is pushed together responsive to force applied, total capacitance as measured across the planes of plate elements varies.

**58 Claims, 8 Drawing Sheets**